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CARDIOVASCULAR FLASHLIGHT

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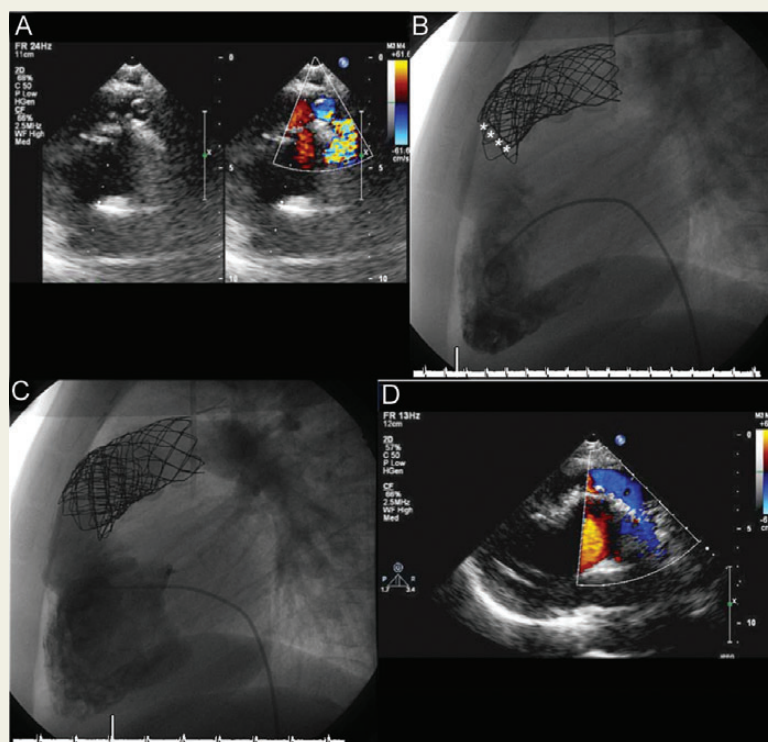
Accidental stent fracture due to chest trauma after percutaneous Melody valve implantation

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A 12-year-old boy was treated with percutaneous Melody valve implantation (Medtronic, Inc., USA) due to a severe right ventricular (RV) to pulmonary artery (PA) homograft stenosis. Two years later, while playing at a swimming pool, the boy received a powerful and unexpected hit to his back by a rubber tyre. He immediately complained about severe back and chest pain, general weakness, nausea, and one episode of syncope during exertion. Doppler echocardiography revealed a new severe pulmonary (Melody) valve stenosis with a narrowed lumen and a free floating structure inside (Panel A). Cardiac catheterization revealed severe RV-PA obstruction (peak-to-peak-gradient 40 mmHg). This was caused by fractures of anterior and proximal stent struts of the Melody valve just behind sternal boarder ("coup contre-coup" mechanism) leading to dynamic narrowing of the stent lumen by protruding like an additional valve into the vessel lumen during systole (Panel B, asterisks; Supplementary material online, Video loop S1). Melody valve integrity itself was not affected. Therefore, implantation of a second Melody valve inside the old valve ("valve-in-valve") was carried out. After intervention, Melody valve position and function were excellent (Panel C; Supplementary material online, Video loop S2). On echo, at discharge 3 days later, Melody valve showed a laminar flow pattern (Panel D).



Coup contre-coup mechanism due to accidental chest trauma may cause strut fractures of the valved stent due its anatomic nearness to sternal border. In this situation, a percutaneous valve-in-valve procedure has to be considered. This can be performed safely and avoids cardiopulmonary bypass surgery.

Supplementary material is available at *European Heart Journal* online.